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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. 98-ANE-68-AD; Amendment 39-13362; AD 2003-22-14]**

**RIN 2120-AA64**

### **Airworthiness Directives; Rolls-Royce Deutschland Ltd & Co KG Models Tay 650-15 and 651-54 Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** The FAA is superseding an existing airworthiness directive (AD) for Rolls-Royce Deutschland Ltd & Co KG (RRD) (formerly Rolls-Royce plc) models Tay 650-15 and 651-54 turbofan engines with certain part numbered fan blades and fan discs. That AD currently requires initial and repetitive visual and ultrasonic inspections of fan blades for cracks, and, if necessary, replacement with serviceable parts. In addition, that AD requires recording instances when engines are operated in a stabilized manner in newly prohibited ranges. This ad has the same requirements. In addition, this AD requires recording instances when engines are operated inadvertently in reverse thrust in prohibited ranges, and requires before further flight, initial and repetitive ultrasonic inspections of fan blades for cracks and if necessary, dispositioning of fan blades and fan discs, if certain reverse thrust events occurred. This AD is prompted by updated prohibited ranges of engine operation and the introduction of an N1 Alert System in Fokker Model F.28 Mark 0100 airplanes with Tay 650-15 engines installed. We are issuing this AD to prevent fan blade failures, which can result in an uncontained engine failure, engine fire, and damage to the airplane.

**DATES:** This AD becomes effective December 18, 2003. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of December 18, 2003.

#### **ADDRESSES:**

You can get the service information identified in this AD from Rolls-Royce plc, Technical Publications Department, PO Box 31, Derby, England DE248BJ; telephone 44 1332 242424, fax 44 1332 249936.

You may examine the AD docket, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA. You may examine the service information, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** James Lawrence, Aerospace Engineer, Aircraft Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7176, fax (781) 238-7199.

**SUPPLEMENTARY INFORMATION:** The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to Rolls-Royce Deutschland Ltd & Co KG (RRD) (formerly Rolls-Royce plc) models Tay 650-15 and 651-54 turbofan engines with certain part numbered fan blades and fan discs. We published the proposed AD in the Federal Register on May 28, 2003 (68 FR 31642). That action proposed to require initial and repetitive visual and ultrasonic inspections of fan blades for cracks, and, if necessary, replacement with serviceable parts. In addition, that action proposed to require recording instances when engines are operated in a stabilized manner in newly prohibited ranges. That action also proposed to require recording instances when engines are operated inadvertently in reverse thrust in prohibited ranges, and proposed to require, before further flight, initial and repetitive ultrasonic inspections of fan blades for cracks, and, if necessary, dispositioning of fan blades and fan discs, if certain reverse thrust events occurred.

## **Comments**

We provided the public with the opportunity to participate in the development of this AD. We have considered the comments received.

## **Request For 1-Cycle Extension**

One commenter states that according to Table 1 of the NPRM, if a powerback event is performed with a Fokker Model F.28 Mark 0100 airplane that is not equipped with the N1 Alert System, and the pilot believes the fan speed (N1) reached or exceeded 57%, for 7.5 seconds or more, the pilot must stop the flight. The flight data recorder must be checked to determine whether or not 57% N1 was exceeded and duration was exceeded. If N1 and duration exceeded the limits, the fan blades must be inspected. The airplane can be returned to service only after these steps have been done. The commenter requests that we change Table 1 of the AD to allow a 1-cycle extension before downloading the data from the flight data recorder. This extension would be allowed only if the flight crew stated that the powerback event was in the N1 range of 57% to 75% range for 2 seconds or less.

The FAA agrees. This request is based on a previously approved alternative method of compliance, for AD 2001-22-18. We have added a paragraph to this AD that allows a 1 flight-cycle extension for Tay 650-15 engines with an N1 alert system not installed, or installed but not operative, if a powerback event is in the N1 range of 57% to 75% N1 for 2 seconds or less. We have also added a reference to that paragraph in Table 1 of the AD.

## **Request for 50-Cycle Allowance**

One commenter states that according to Table 1 of the NPRM, if a nonpowerback reverse thrust event is performed with a Fokker Model F.28 Mark 0100 airplane that is not equipped with the N1 Alert System, and the N1 speed was above idle, then before the next flight, the data from the flight data recorder must be downloaded to determine whether the N1 limit and duration were exceeded, and if they were, the fan blades must be inspected before further flight. The commenter states that this conflicts with RRD Service Bulletin (SB) No. Tay 72-1447, which only requires that the inspection be done within 50 cycles of the suspect event, if it is confirmed that the N1 limit and duration were exceeded. The SB cycle allowance is only applicable if it can be determined that the engine does not already have an event during which the reverse thrust exceeded idle and has not had the 1,000 to 1,500 cycle follow-up inspection. The commenter requests the 50-cycle allowance be incorporated into the AD.

The FAA agrees. The intent of the proposed AD is to follow the requirements of RRD SB No. Tay 72-1447, Revision 4, dated May 8, 2002. We have identified areas in Table 1 of the NPRM that need improvement. We have changed the wording in the fifth column of Table 1, item (1)(ii)(A), of this AD, to be less restrictive and to encompass the 50-cycle allowance specified in the SB, for Tay 650-15 engines.

## **Conclusion**

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

## **Changes to 14 CFR Part 39—Effect on the AD**

On July 10, 2002, we issued a new version of 14 CFR part 39 (67 FR 47998, July 22, 2002), which governs the FAA's AD system. That regulation now includes material that relates to altered products, special flight permits, and alternative methods of compliance. The material previously was included in each individual AD. Since the material is included in 14 CFR part 39, we will not include it in future AD actions.

## **Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866;
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "AD Docket No. 98-ANE-68-AD" in your request.

## **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **Adoption of the Amendment**

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Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 as follows:

## **PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing Amendment 39-12497 (66 FR 56755, November 13, 2001) and by adding a new airworthiness directive, Amendment 39-13362, to read as follows:

# AIRWORTHINESS DIRECTIVE



Aircraft Certification Service  
Washington, DC

U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

*We post ADs on the internet at "www.faa.gov"*

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

**2003-22-14 Rolls-Royce Deutschland Ltd & Co KG:** Amendment 39-13362. Docket No. 98-ANE-68-AD. Supersedes AD 2001-22-18, Amendment 39-12497.

## Effective Date

- (a) This AD becomes effective December 18, 2003.

## Affected ADs

- (b) This AD supersedes AD 2001-22-18.

## Applicability

(c) This AD applies to Rolls-Royce Deutschland Ltd & Co KG (RRD) (formerly Rolls-Royce plc) models Tay 650-15 turbofan engines with fan blades, part numbers (P/Ns) JR31911, JR31912, JR33865, JR33866, JR35120, or JR35121, installed in fan discs P/N JR31198A, and Tay 651-54 turbofan engines with fan blades P/Ns JR31911, JR31912, JR33865, or JR33866, installed in fan discs P/N JR34563A. These engines are installed on, but not limited to, Fokker Model F.28 Mark 0100, and Boeing 727-100 series airplanes modified in accordance with Supplemental Type Certificate (STC) SA8472SW (727-QF).

## Unsafe Condition

(d) This AD is prompted by updated prohibited ranges of engine operation and the introduction of an N1 Alert System in Fokker Model F.28 Mark 0100 airplanes with Tay 650-15 engines installed. The actions specified in this AD are intended to prevent fan blade failures, which can result in an uncontained engine failure, engine fire, and damage to the airplane.

## Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

## Record Operation in Prohibited Operating Ranges

(f) If an engine is operated inadvertently in reverse thrust within the prohibited ranges described in RRD Service Bulletin (SB) No. Tay 72-1447, Revision 4, dated May 8, 2002, paragraph 1.C., as applicable by engine model, then before further flight make an entry in the engine records that reflects that operation. If known, include the stabilized N1 speed in the engine records.

## Inspections

(g) Perform initial and repetitive ultrasonic inspections (UI) of fan blades each time an engine is operated inadvertently in reverse thrust within the prohibited ranges described in RRD SB No. Tay 72-1447, Revision 4, dated May 8, 2002, paragraph 1.C., as specified in the following Table 1:

**TABLE 1. INITIAL AND REPETITIVE INSPECTION CRITERIA**

<b>Airplane and engine model</b>	<b>N1 alert system status (installed per Fokker SB F100-31-060)</b>	<b>Was this a powerback event?</b>	<b>If inadvertent reverse thrust event was:</b>	<b>Then before next flight:</b>
(1) Fokker 0100; Tay 650-15.	(i) Installed and operative.	(A) No	Between 57% and 75% N1 speed for 7.5 seconds or more.	Perform UI and if necessary, disposition parts in accordance with paragraphs 3. and 3.A. of RRD SB No. Tay 72-1447, Revision 4, dated May 8, 2002.
		(B) Yes	Between 57% and 75% N1 speed for 7.5 seconds or more.	Perform UI and if necessary, disposition parts in accordance with paragraphs 3. and 3.B. of RRD SB No. Tay 72-1447, Revision 4, dated May 8, 2002.
	(ii) Not installed, or installed but not operative.	(A) No	N1 speed above idle for any reason.	Perform paragraphs 3. and 3.A. of RRD SB No. Tay 72-1447, Revision 4, dated May 8, 2002, unless it can be proven by flight data recorder information that engine operation between 57% and 75% N1 speed lasted less than 7.5. seconds.
		(B) Yes	Between 57% and 75% N1 speed.	If it can be determined that the event lasted for 2 seconds or less, go to paragraph (h) of this AD. Otherwise, perform UI and if necessary, disposition parts in accordance with paragraphs 3. and 3.B. of RRD SB No. Tay 72-1447, Revision 4, dated May 8, 2002, unless it can be proven by flight data recorder information that engine operation between 57% and 75% N1 speed lasted less than 7.5 seconds.
(2) Boeing 727-QF; Tay 651-54.	Not applicable.	Not applicable.	Between 57% and 75% N1 speed for 7.5 seconds or more, or if the parameters cannot be confirmed.	Perform UI and if necessary, disposition parts in accordance with paragraphs 3. and 3.A. of RRD SB No. Tay 72-1447, Revision 4, dated May 8, 2002.

## **One Flight-Cycle Allowance for Tay 650-15 Engines**

(h) You may operate a Tay 650-15 engine that has an N1 alert system installed but not operative, or that does not have an N1 alert system installed, for 1 flight cycle before downloading the flight data recorder information as required in (1)(ii)(B) of Table 1 of this AD, if the flight crew determines that the operation in the prohibited speed range during a powerback event was 2 seconds or less.

## **Alternative Methods of Compliance**

(i) The Manager, Engine Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR part 39.19.

## **Material Incorporated by Reference**

(j) You must use Rolls-Royce Service Bulletin No. Tay 72-1447, Revision 4, dated May 8, 2002, to perform the inspections required by this AD. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You can get a copy from Rolls-Royce plc, Technical Publications Department, PO Box 31, Derby, England DE248BJ; telephone 44 1332 242424, fax 44 1332 249936. You can review copies at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

## **Related Information**

(k) CAA airworthiness directives 008-10-97, dated October 31, 1997, and 001-12-97, dated December 19, 1997 also address the subject of this AD.

Issued in Burlington, Massachusetts, on October 31, 2003.

**Jay J. Pardee,**

*Manager, Engine and Propeller Directorate, Aircraft Certification Service.*

[FR Doc. 03-27924 Filed 11-12-03; 8:45 am]

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